MultiSync MT 1020G /820G
LCD Projector
User's Manual

English

Precautions

Please read this manual carefully before using your NEC MultiSync MT1020G/820G LCD Projector and keep the manual handy for future reference.

Your serial number is located next to the main power switch on the back of your MultiSync MT1020G/820G . Record it here:

CAUTION

**LASER RADIATION-
DO NOT STARE INTO BEAM**

**WAVE LENGTH: 670 nm MAX. OUTPUT: 1 mW
CLASS II LASER PRODUCT**

⚠ CAUTION

TO PREVENT SHOCK, DO NOT OPEN THE CABINET. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED NEC SERVICE PERSONNEL.

WARNING

TO PREVENT FIRE OR SHOCK, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE. DO NOT USE THIS UNIT'S GROUNDED PLUG WITH AN EXTENSION CORD OR IN AN OUTLET UNLESS ALL THREE PRONGS CAN BE FULLY INSERTED. DO NOT OPEN THE CABINET. THERE ARE HIGH-VOLTAGE COMPONENTS INSIDE. ALL SERVICING MUST BE DONE BY QUALIFIED NEC SERVICE PERSONNEL.

Important Safeguards

These safety instructions are to ensure the long life of your LCD projector and to prevent fire and shock. Please read them carefully and heed all warnings.

Installation

1. For best results, use your LCD projector in a darkened room.

2. Place the projector on a flat, level surface in a dry area away from dust and moisture.

3. Do not place your LCD projector in direct sunlight, near heaters or heat radiating appliances.

4. Exposure to direct sunlight, smoke or steam can harm internal components.

5. Handle your LCD projector carefully. Dropping or jarring can damage internal components.

6. Do not place heavy objects on top of the LCD projector.

7. If installing the LCD projector on the ceiling:

   a. The ceiling must be strong enough to support the LCD projector and the installation must be in accordance with any local building codes.

   b. The LCD projector must be installed by qualified NEC service personnel.

Power Supply

1. The LCD projector is designed to operate on a power supply of 100-120 or 220-240 V 50/60 Hz AC. Ensure that your power supply fits this requirement before attempting to use your LCD projector.

2. Handle the power cable carefully and avoid excessive bending. A damaged cord can cause electric shock or fire.

3. If the LCD projector is not to be used for an extended period of time, disconnect the plug from the power outlet.

Cleaning

1. Unplug the LCD projector before cleaning.
2. Clean the cabinet periodically with a damp cloth. If heavily soiled, use a mild detergent. Never use strong detergents or solvents such as alcohol or thinner.
3. Use a blower or lens paper to clean the lens, and be careful not to scratch or mar the lens.
4. Clean the air filter with a vacuum cleaner after every 100 hours of operation.
   a. Clean the outside of the filter with a vacuum cleaner.
   b. Do not use water or any other liquid to clean the air filter.
   c. Do not operate your LCD projector without the air filter.

Lamp Replacement

- Be sure to replace the lamp when the Status light comes on. If you continue to use the lamp after 2000 hours of use, the lamp bulb may shatter, and pieces of glass may be scattered in the lamp case. Do not touch them as the pieces of glass may cause injury. If this happens, contact your NEC dealer for lamp replacement.

- Allow a minimum of ONE minute to elapse between turning the lamp off and on. High voltage is applied to the lamp immediately when the power is turned on. Therefore turning the power off and quickly back on may shorten the life of your lamp and result in damage to your LCD projector.

Fire and Shock Precautions

1. Ensure that there is sufficient ventilation and that vents are unobstructed to prevent the build-up of heat inside your LCD projector. Allow at least 10cm (3 inches) of space between your LCD projector and a wall.

2. Prevent foreign objects such as paper clips and bits of paper from falling into your LCD projector. Do not attempt to retrieve any objects that might fall into your projector. Do not insert any metal objects such as a wire or screwdriver into your LCD project. If something should fall into your projector, disconnect it immediately and have the object removed by a qualified NEC service person.

3. Do not place any liquids on top of your LCD projector.

- **Do not look into the lens while the projector is on. Serious damage to your eyes could result.**

- **Do not look into the laser pointer while it is on and do not point the laser beam at another person. Serious injury could result.**

TABLE OF CONTENTS

This section introduces you to your new MultiSync MT1020G(XGA) or MT820G(SVGA) LCD Projector, provides a list of materials that comes with your projector and describes the features and controls.

Congratulations On Your Purchase Of The MultiSync MT1020G/820G LCD Projector

The MultiSync MT1020G/820G is one of the very best LCD projectors available today. The multiple LCD panels enable you to project precise images up to 300 inches across (measured diagonally) from your PC or Macintosh computer (desktop or notebook), VCR, document camera, or even a laser disc player.

You can use the projector on a tabletop or cart, you can permanently mount it on a ceiling*[1], or you can use MultiSync MT1020G/820G LCD Projector to project images from behind the screen. The remote control can be used wirelessly or with a cable, and you can even use the remote control with the remote mouse receiver to operate the mouse on your PC or Mac. But best of all, the MultiSync MT1020G/820G is an NEC LCD projector. That means you can depend on years of reliable performance and crystal-clear presentations!

The features you'll enjoy include:

- Simple set up and operation.
- A high-performance 250 watt metal halide lamp that delivers 700 ANSI lumens (MT1020G: 600 ANSI lumens) and is guaranteed for 2000 hours of service or six months, whichever comes first.
- A wireless remote control that operates the projector from any angle.
- A laser pointer that's built into the remote control.
- The power zoom control enables you to adjust the image to be between 20 and 300 inches (measured diagonally).
- You can choose between video modes depending on your source: "normal" for a typical picture, "natural" for true color reproduction, and "camera" for use with a document camera or low APL picture.

- The "image capture" enables you to use the entire picture as a background image or to create an image loop.
- An image can be projected from in front or behind a screen, and the projector can even be installed on the ceiling.
- Supports most IBM VGA, S-VGA, XGA*[2], SXGA (pseudo)*[3], Macintosh or any other RGB signals within a horizontal frequency range of 15.625 to 85 kHz (MT820G: 15.625 to 60 kHz) and a vertical frequency range of 50 to 85 Hz. This includes NTSC, PAL, SECAM and NTSC 4.43 standard video signals.

Note: Composite video standards are as follows:
NTSC: U.S. TV standard for video in U.S. and Canada.
PAL: TV standard used in western Europe
SECAM: TV standard used in France and Eastern Europe
NTSC4.43: TV standard used in Middle East countries

- The remote control can be used with or without a cable, and you can even use the remote to operate your PC or Macintosh mouse wirelessly from across the room with the remote mouse receiver.
- You can control your MultiSync MT1020G/820G LCD Projector with a PC.
- The contemporary cabinet design is compact, easy to carry, and complements any office, board room or auditorium.
- *[1] Installing the MultiSync MT1020G/820G LCD Projector on the ceiling must be done by authorized NEC technicians.

  Consult your NEC dealer for more information.
- *[2] An XGA image (1024×768) is compressed into 800×600 on MT820G.
- *[3] An SXGA pseudo image (1280×1024) is not supported by MT820G.

How Do You Get Started?

The fastest way to get started is to take your time and do everything right the first time. Taking a few minutes now to review the manual may save you hours later on. At the beginning of each section of the manual you'll find an overview. If the section doesn't apply, you can skip it.
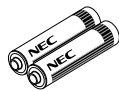
What's In The Box?

Make sure your box contains everything listed. If any pieces are missing, contact your dealer. Please save the original box and packing materials if you ever need to ship your MultiSync MT1020G/820G LCD Projector.

- NEC MultiSync MT1020G/820G LCD Projector
- Remote Control With Built-In Laser Pointer And Cables
- Remote Mouse Receiver
- PC/Macintosh MultiCable
  (15-Pin Mini D-Sub To 15-Pin D-Sub Connector)
- Power Cable
- Two AA Batteries
- Lift kit
- User's Manual
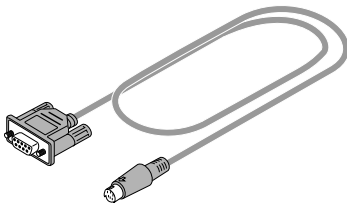
Remote control   Batteries (AA×2)   Remote cable   Remote Mouse Receiver
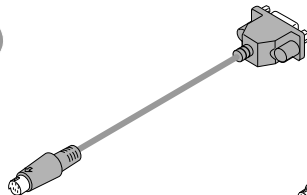
Serial cable   Mouse adapter (For IBM PS/2)   Mouse adapter (For Macintosh)   PC/Macintosh MultiCable
(15-Pin Mini D-Sub To 15-Pin D-Sub connector)
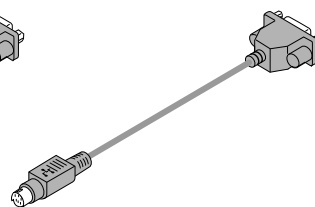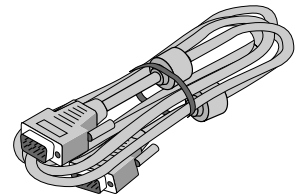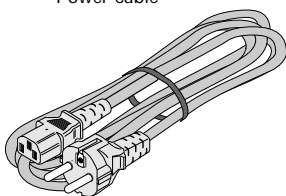
Power cable   Lift Kit   User's manual
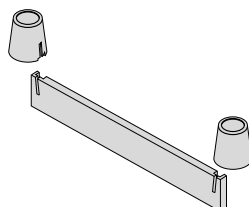
Getting To Know Your MultiSync MT1020G/820G LCD Projector

Front Features

Remote Sensor

Lens And Lens Cap

One-Touch
Tilt buttons

Filter Vent

Front Feet

Rear Features

Terminal Panel

Slot for Kensington MicroSaver
Security System

Remote Sensor

Rear Feet

Main Power Switch

AC Input
Connect the supplied power
cable's three-pin plug here.

Right Side Features

Carrying Handle

Remote Sensor

Built-In Speakers (1W)

Left Side Features

Remote Sensor

Lamp Cover Set Screw

Lamp Cover

Built-In Speakers (1W)
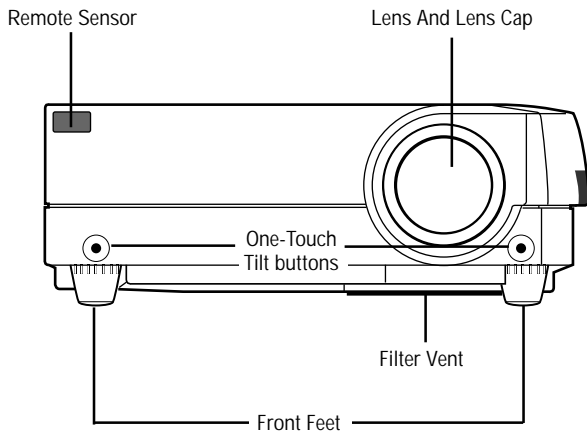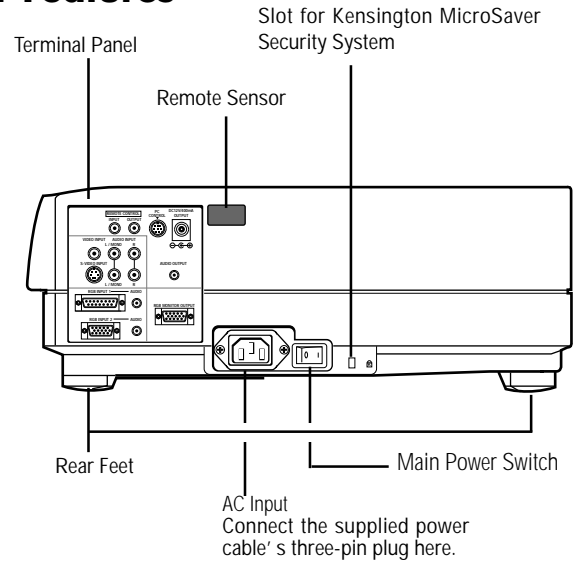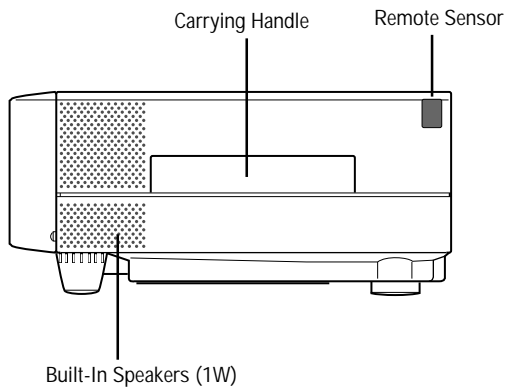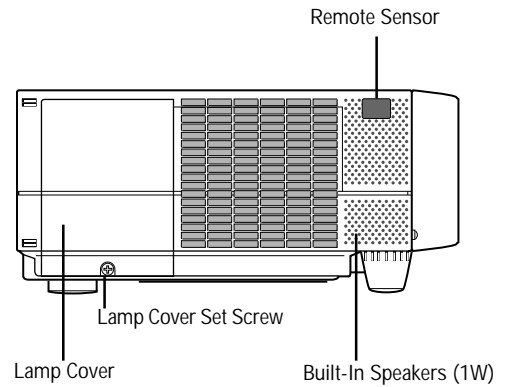
Top Features

1 **Power Button**

Use this button to turn the power on and off when Main Power Switch is on and the LCD projector is on standby. (When this button is pressed and held for at least two seconds, the "Display Mute" mode will be canceled.)

2 **Menu Button**

Displays the on- screen menu.

3 **Select Button**

After you press the "Menu" button, use this button to select the menu icon of the item you wish to adjust.

4 **Enter Button**

Executes your menu selection.

5 **(+) (–) Adjust Button**

Use these buttons while you' re in the Image Adjust mode to change the level of a selected menu item. These buttons are also used to set an item in the Power or Settings menus.

6 **(+) (–) Zoom Buttons**

Press the (+) button to make the image larger; press (–) to make the image smaller.

7 **(+) (–) Focus Buttons**

Press the (+) or (–) buttons to focus an image.

8 **Power Indicator**

When this indicator is green, the LCD projector is on; when the indicator is amber, it is standing by.

9 **Status Indicator**

When this is lit red continually, it's warning you that the projection lamp has exceed 2000 hours of service. After this light appears, it is advisable to replace the projection lamp as soon as possible.(See page E-28.)
When the operating time of the lamp exceeds 2000 hours, the STATUS indicator is lit red continually. In addition the message "LAMP USAGE XX HOURS" appears continually when the on-screen menu is not displayed.
If this light blinks red rapidly, it indicates that either the lamp cover or filter cover is not attached properly; if the light blinks slowly it means the projector's internal temperature is too hot to operate safely. See the Status Light Messages on page E-30 for more details.
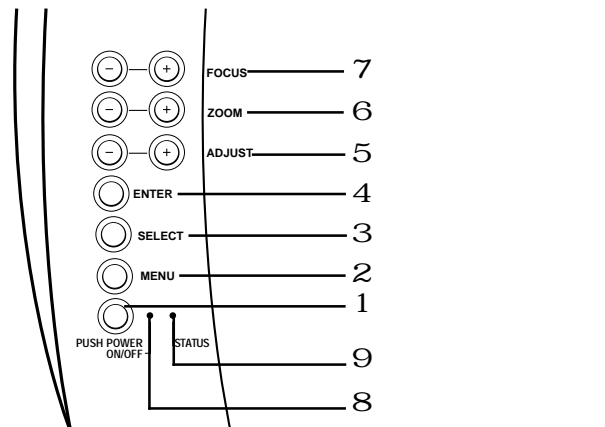
Terminal Panel Features

This panel is located in the rear and is where you connect your cables.

1 **Remote Control Jacks**

   a. Remote Control Input Jack
   Connect your remote control cable here for wired operation.
   b. Remote Control Output Jack
   This terminal enables you to operate up to five LCD projectors with the same remote control.
   When your remote mouse receiver is connected here, the remote sensors on the LCD projector cabinet will receive your mouse commands.

2 **PC Control Port**

   Use this port to connect your PC to control the MultiSync MT1020G/820G Projector. This enables you to use your PC and serial communication protocol to control the projector. If you are writing your own program, command references are on pages E-36.

3 **12V DC/400 mA Output Terminal**

   Use this terminal to plug in a document camera or any other 12V accessory.

4 **Video Input**

   Connect a VCR, laser disk player, or document camera here to project video.

   Left Channel/Mono Audio Input Jack

   This is your left channel audio input for stereo sound coming from video equipment or audio system. This also serves as your monaural audio input.

   Right Channel Audio Input Jack

   This is your right channel audio input for stereo sound.

5 **S-Video Input**

   Here is where you connect S-Video input from an external source like a VCR.

   Left Channel/Mono Audio Input Jack

   This is your left channel audio input for stereo sound coming from S-Video equipment or audio system. This also serves as your monaural audio input.

   Right Channel Audio Input Jack

   This is your right channel audio input for stereo sound.

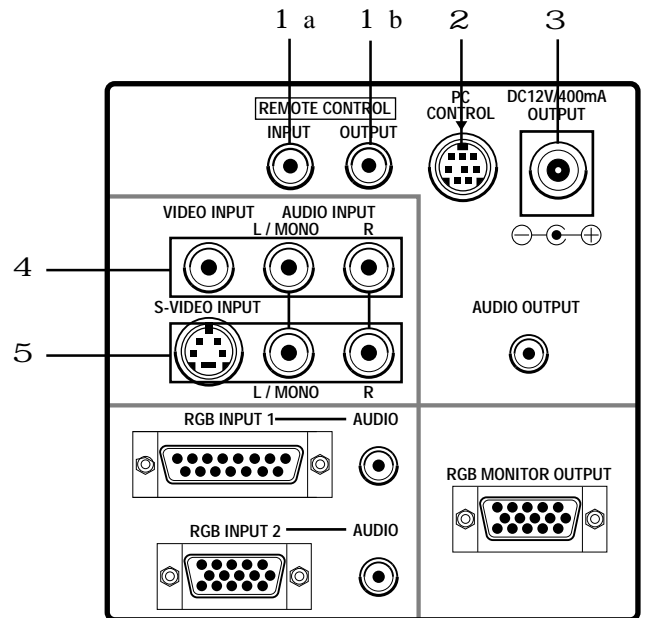*NOTE: S-Video provides more vivid color and higher resolution than the traditional composite video format.*

6 **RGB Input 1 Connector (D-Sub 15 pin)**

Connect your PC or other RGB equipment such as IBM or compatible computers. Use the NEC MultiCable that's supplied to connect to a PC.

RGB 1 Audio Input Mini Jack

This is where you connect RGB audio output from a computer or another RGB source.

7 **RGB Input 2 Connector (Mini D-Sub 15 pin)**

Connect a Macintosh or compatible computer here using the NEC MultiCable that's supplied.

RGB 2 Audio Input Mini Jack

This is where you connect a second RGB audio output from a computer or another RGB source.

8 **Audio Output Mini Jack**

Connect additional external speakers here to listen to audio coming from your computer, Video or S-Video input.

9 **RGB Monitor Output Connector (Mini D-Sub 15 pin)**

You can use this connector to loop your computer image to an external monitor from either the RGB 1 or RGB 2 input source.

O **Built-in Security Slot ( )**

This security slot supports the MicroSaver® Security System.

MicroSaver® is a registered trademark of Kensington Microware Inc. The logo is trademarked and owned by Kensington Microware Inc.
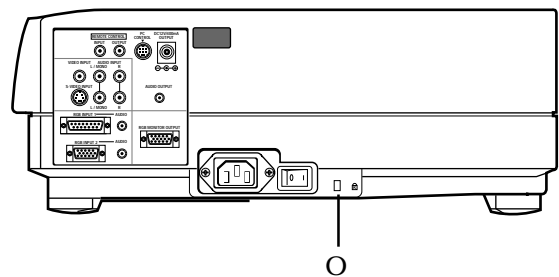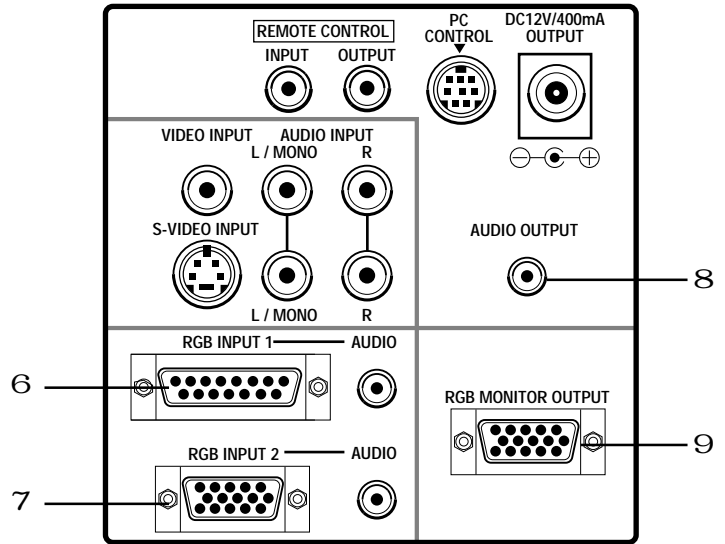
Remote Control Features

You can use your remote control with the cable or wireless to operate your MultiSync MT1020G/820G LCD Projector. With the remote mouse receiver connected to your computer, you can also use the projector's remote control to operate your computer's mouse wireless, too. (See page E-20 to connect the remote mouse receiver to your computer.) If you want to use your remote control with the cable, connect one end of the cable to the jack on the remote control and the other end to the Terminal Panel.

NOTE: If you are using a Macintosh computer, you can click either the right or left button to activate the mouse.

1 **Left Click Button**
Use this button to enter your menu selection. It works the same as the "Enter" button on the cabinet.

2 **Laser Pointer**
Beams a laser light when "Laser" button is pressed.

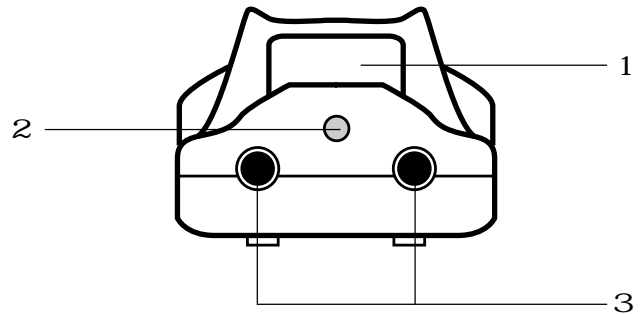3 **Infrared Transmitter**
Direct the remote control toward the remote sensor on the projector cabinet or the remote mouse receiver.

4 **LED**
Flashes when any button is pressed.

5 **Power On And Off**
If your main power switch is turned on, you can use this button to turn your MultiSync MT1020G/820G LCD Projector on and off.

6 **Video Button**
Press to select an NTSC, PAL, SECAM or NTSC4.43 compatible video source from a VCR, laser disc player or document camera.

7 **Volume Buttons**
Press (+) to increase the volume and (-) to decrease it.

8 **S-Video Button**
Press to select an S-Video source from a VCR.

9 **RGB 1 Button**
Press to select a video source from a computer connected to your RGB 1 port.

O **RGB 2 Button**
Press to select a video source from a computer connected to your RGB 2 port.
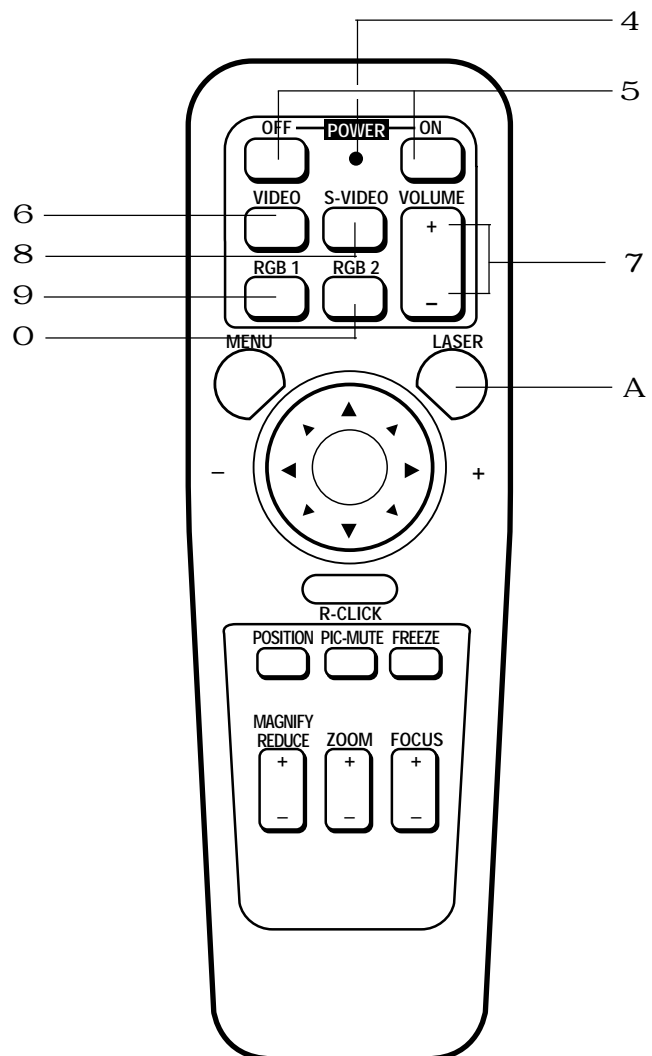
A **Laser Button**
Press and hold this button to activate the laser pointer. When lit, you can use the laser to draw your audience's attention to a red dot that you can place on any object within 10 m (30 feet).

B **Menu Button**

Use this button to call up the On-Screen Menu so you can adjust and set the image. After you press this button, it will light up. During this time you can use the mouse pointer and right / left click buttons to make menu selections. If no buttons are pressed within 10 seconds while it illuminates, the light goes out. To return to the main menu from a sub menu, press this button again.

C **Mouse Pointer Buttons**

Works as a mouse for your projected computer image. This button is also used to adjust position.

These buttons select the submenu you want to adjust. (See page E-23.)

After you make your on-screen menu selection, use this button to adjust the level up or down. (See page E-23.)

D **Right Click Button**

Press this button to exit "Menus" or "Position."

E **Freeze Button**

This button will freeze a picture. Press again to resume motion.

F **Position Button**

When the picture is magnified, press this button to activate the mouse buttons that you can use to reposition the image in eight directions. When you're finished, the "Position" button will remain lit for 10 seconds.

NOTE: When you are adjusting Position, the Mouse Pointer button is used to move the picture.

G **Picture Mute Button**

This button turns off the image for a short period of time. Press again to restore the image.

H **Magnify/Reduce Button**

Use the (+) or (–) button to adjust the image size up to 400%.

I **Focus Button**

Press the (+) or (–) button to adjust the focus.

J **Zoom Button**

Press the (+) button to zoom in and the (–) button to zoom out.

K **Remote Jack**

Connect your remote control cable here for for wired operation.

NOTE: You cannot use Menu and Position at the same time.
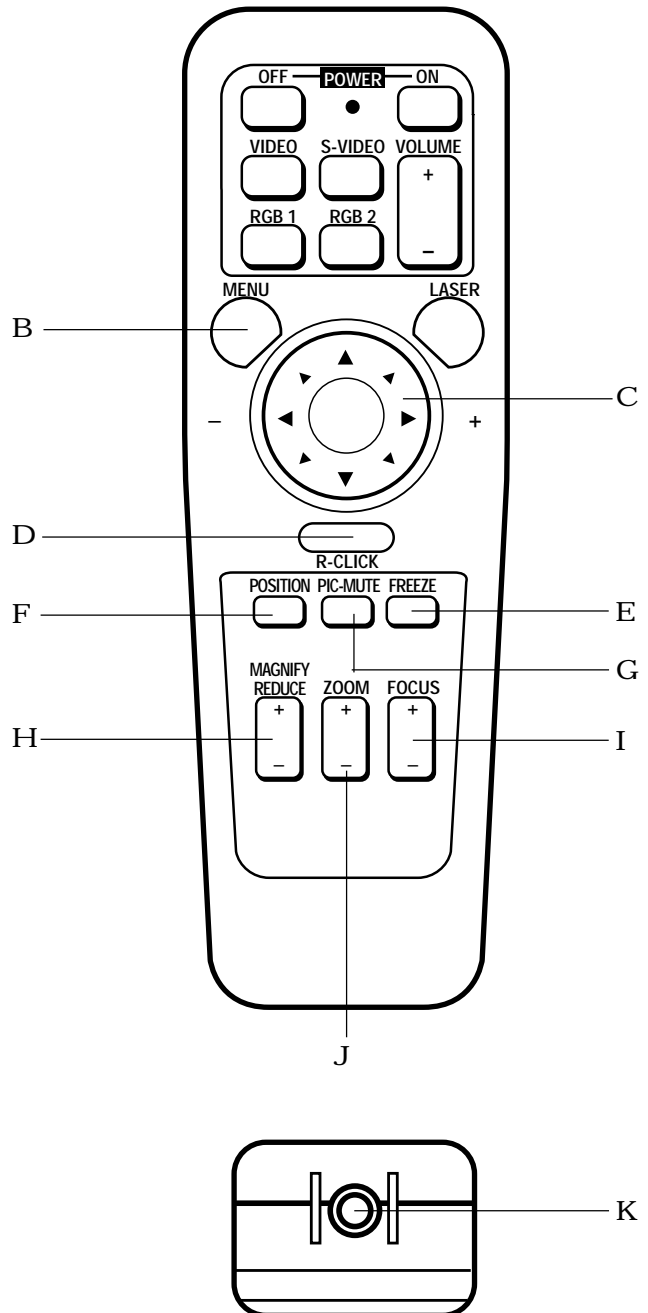
Remote Control Precautions

• Do not look into the laser pointer while it is on.
• Do not point the laser beam at a person.
• When the cable is connected to the remote control, it will not work wirelessly.
• Handle the remote control carefully.
• If the remote control gets wet, wipe it dry immediately.
• Avoid excessive heat and humidity.
• If you will not be using the remote control for a long time, remove the batteries.
• Do not mix new and old or different types of batteries.

This section describes how to set up your MultiSync MT1020G/820G LCD projector and how to connect video and audio sources.

Setting Up Your MultiSync MT1020G/820G LCD Projector

Your MultiSync MT1020G/820G LCD Projector is simple to set up and use. But before you get started, you must first:

1. Determine the image size

2. Set up a screen or select a non-glossy white wall onto which you can project your image.

Carrying The LCD Projector Always carry your LCD projector by the handle. Ensure that the power cord and any other cables connecting to video sources are disconnected before moving the projector. When moving the projector or when it is not in use, cover the lens with the lens cap.

Selecting A Location The further your LCD projector is from the screen or wall, the larger the image. The minimum size the image can be is approximately 20" (0.5 m) measured diagonally when the projector is roughly 1.0 m (3 feet) from the wall or screen. The largest the image can be is 300" (7.6 m) when the projector is about 12.2 m (40.03 feet) from the wall or screen.

Using the Supplied Lift Kit

When you need to set the projector at 10.5° projection angle or more, assemble and use the lift kit.

1. Assemble the kit.
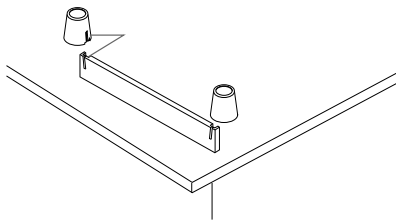
• Align the foot and mate with corresponding grooves in the bar.

2. Place the projector on the lift kit.

Carrying handle

Push to release the handle.

Pull out

Push to retract

Projection Distance and Image Size

Diagonal Image Size (inch)

350
300 — 300″
250 — 235″
200
150 — WIDE
100 — TELE
50
27″
20″
0

0.0   6.56   13.12   19.69   26.25   32.81   40.03 ft.
       (2.0)   (4.0)   (6.0)   (8.0) (10.0) (12.2) (m)

Projection Distance

Projection distance

Width

Height

Screen size (diagonal)

Using A Tabletop Or Cart

1. Place your LCD projector on a flat level surface at the optimal distance from the screen or wall so you realize the size image you want. (Avoid having bright room lighting or sun light directly on the screen or wall where you'll be projecting the image.)

2. Connect the power cable, remove the lens cap and turn the projector on. (If no input signal is available, the projector will display a background image.)

3. Ensure that the projector is square to the screen.

4. Move the projector left or right to center the image horizontally on the screen. (A)

5. To center the image vertically (B), lift the front edge of the projector and press the buttons on the front of the projector, just above the feet, to release the one-touch tilt feet. (There is approximately 1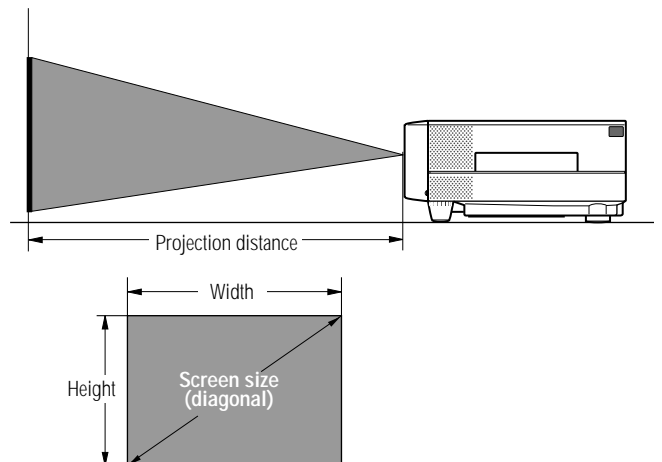0.5˚ of up and down adjustment for the front of the projector. When you need to set the projector at 10.5° projection angle or more, use the lift kit that is supplied.)
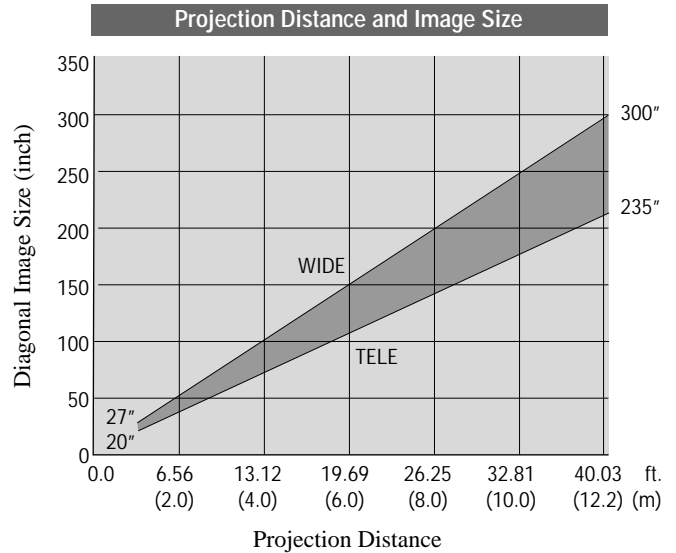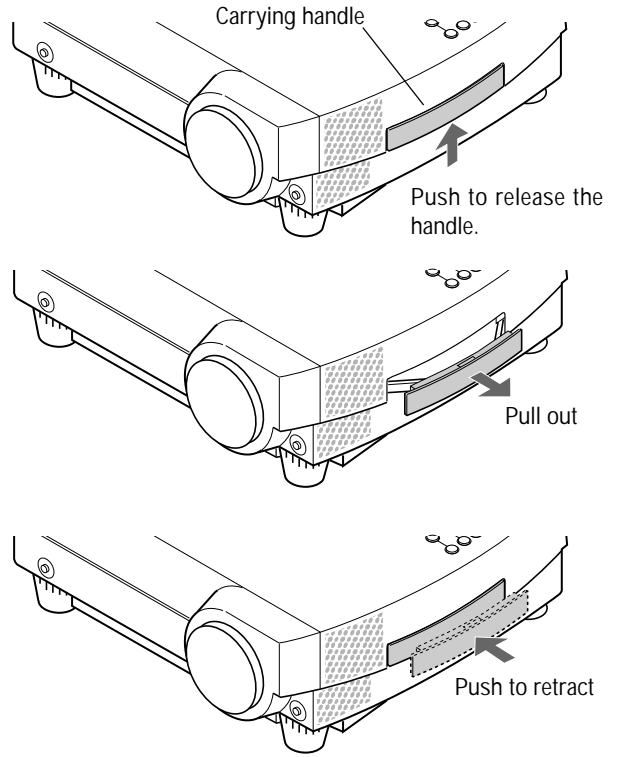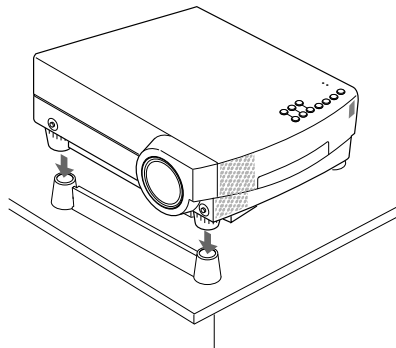
6. To fine tune the image's position vertically on the screen, rotate each front foot.

7. Increase or reduce the size of the projected image by pressing the "Zoom" (+) or (–) buttons on the remote control or top of the cabinet.

(A) Top view

Screen

(B) Side view

Screen

Screen size = diagonal(inch)

Note: Distances may vary ±5%.
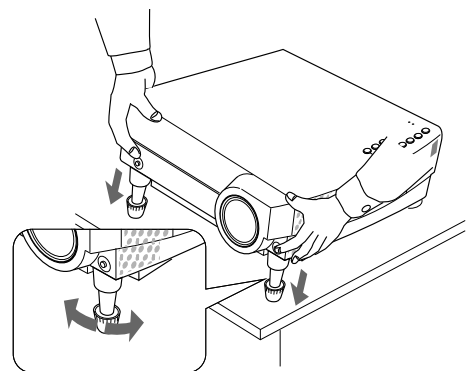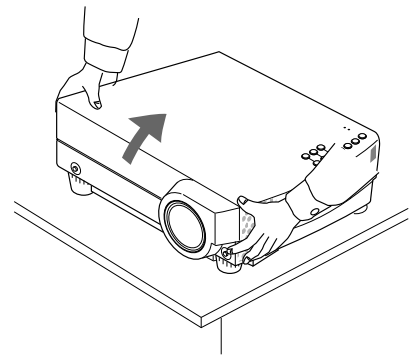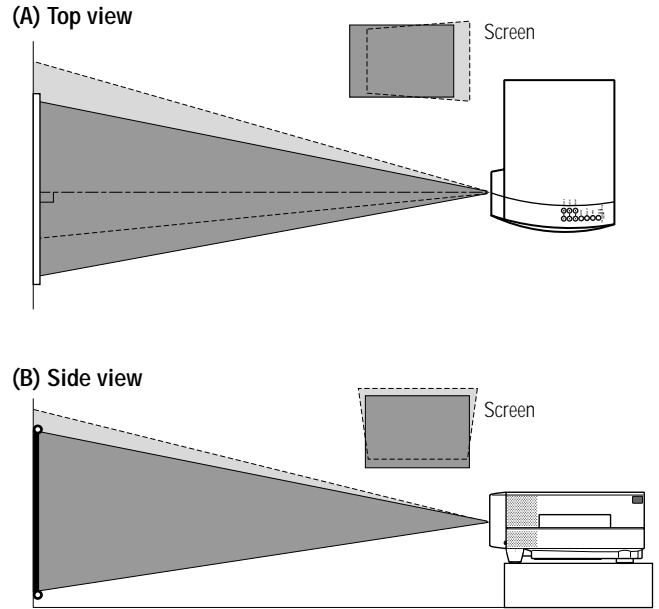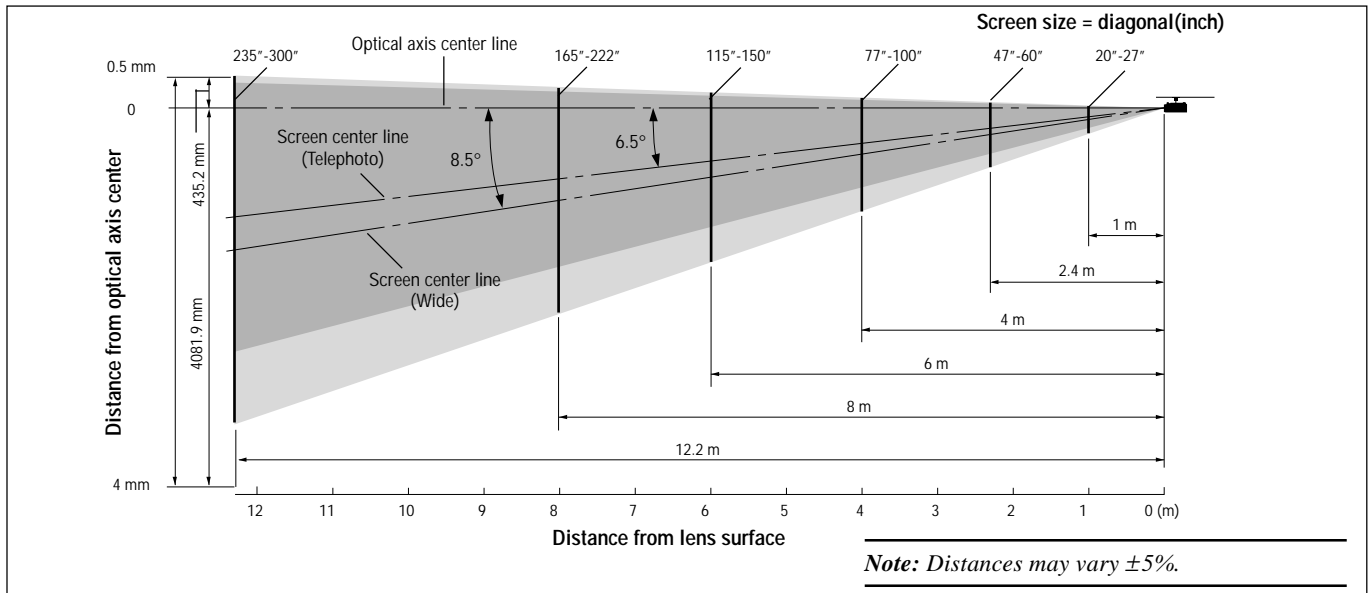
⚠ WARNING

- Only use your LCD projector on a solid, level surface. If the projector falls to the ground, you can be injured and the projector severely damaged.

- Do not use the LCD projector where temperatures vary greatly. The projector must be used at temperatures between 0˚C (32˚F) and 40˚C (104˚F).

- Do not expose the LCD projector to moisture, dust, or smoke. This will harm the screen image.

- Ensure that you have adequate ventilation around your LCD projector so heat can dissipate. Do not cover the vents on the bottom or the side of the projector.

Ceiling Installation

Installing your MultiSync MT1020G/820G LCD Projector on the ceiling must be done by a qualified technician. Contact your NEC dealer for more information.

Do not attempt to install the projector yourself.

- An optional ceiling mount kit MT810/1000 CMKIT manufactured by NEC is recommended.

If your projector is mounted on the ceiling and your image is upside down, use the "Menu" and "Select" buttons on your projector cabinet or (▲) (▼) buttons on your remote control to correct the orientation. (See page E-27.)

Reflecting The Image

Using a mirror to reflect your LCD projector's image enables you to enjoy a much larger image. Contact your NEC dealer if you need a mirror.

If you're using a mirror and your image is inverted, use the "Menu" and "Select" buttons on your projector cabinet or (▲) (▼) buttons on your remote control to correct the orientation. (See page E-27.)

Rear Screen Projection

You can use your MultiSync MT1020G/820G LCD projector to project an image from the rear onto a transparent screen. The distance the projector must be from the screen is the same as if you were projecting the image from the front. Contact your NEC dealer if you need a transparent screen.

If you're projecting the image from the rear and your image is inverted, use the "Menu" and "Select" buttons on your projector cabinet or (▲) (▼) buttons on your remote control to correct the image. (See page E-27.)

Wiring Diagram

Document Camera

VCR or LaserDisk Player

To video, S-video, and audio inputs on the LCD projector.

IBM/MAC MultiCable
To mini D-Sub 15-pin or D-Sub 15-pin connector on the LCD Projector.

IBM VGA or Compatibles

Macintosh or Compatibles

To AC power output

PS/2 mouse adapter (supplied)

Mac ADB adapter (supplied)

Remote Mouse Receiver
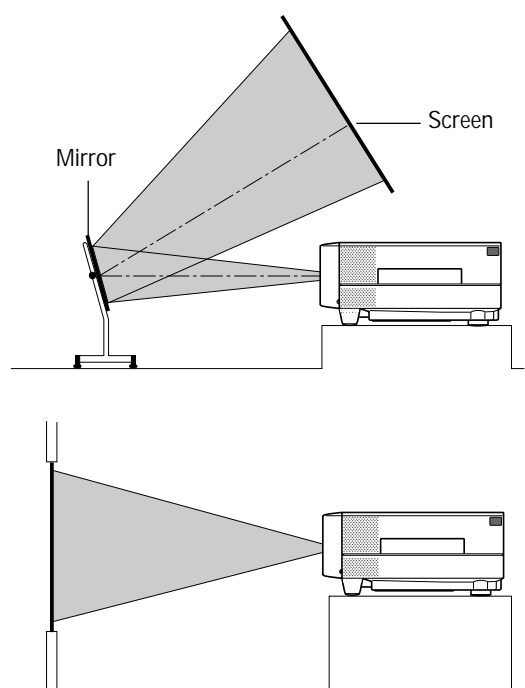
Remote Mouse Receiver
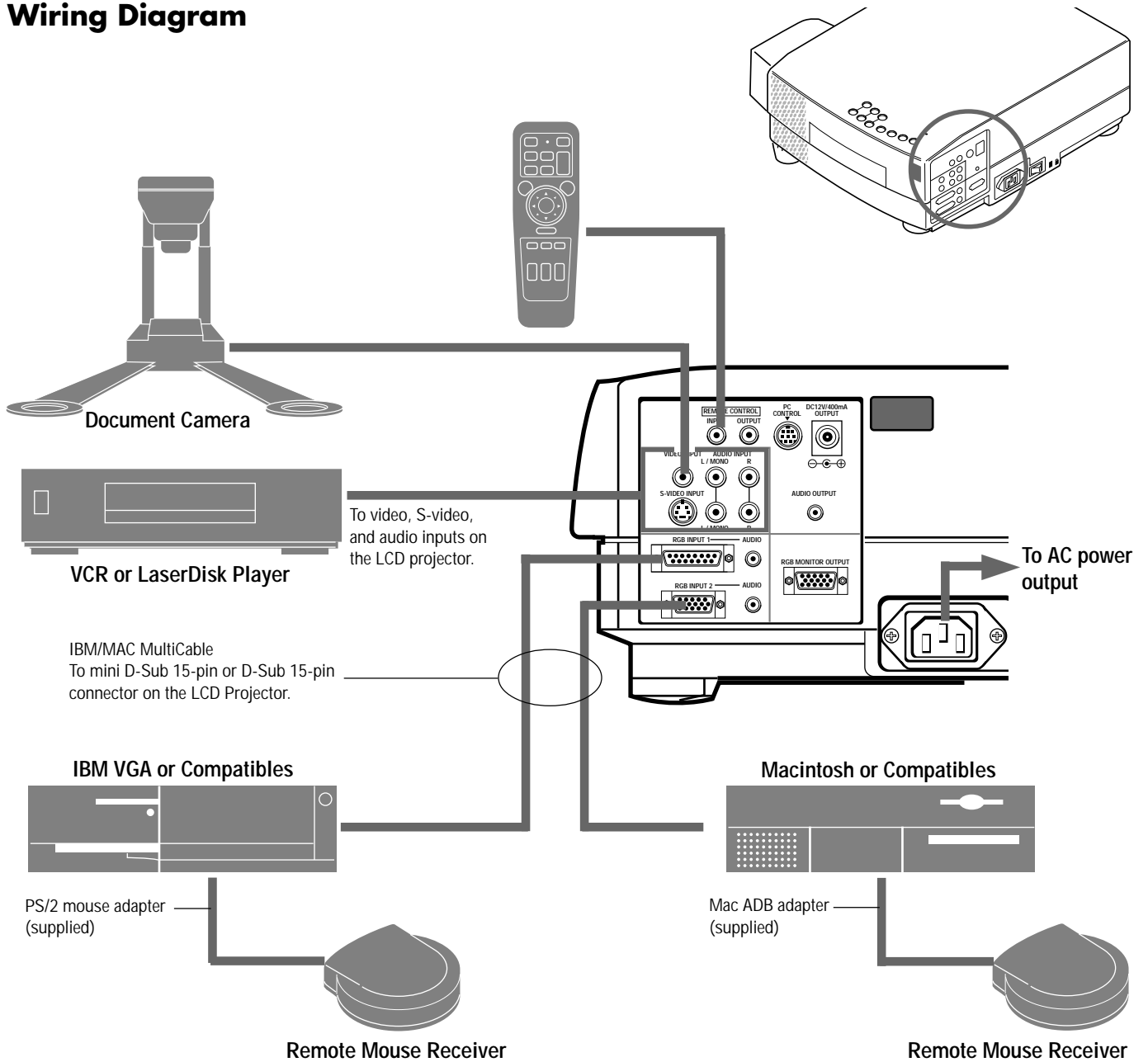
Remote Control Guideline

1. Plug the serial cable with the remote mouse receiver into your computer's mouse port and restart your computer to gain remote mouse control.

2. When using the remote control's built-in infrared mouse on a laptop computer, the laptop's mouse, trackball or trackpad will be disabled. Disconnect the infrared receiver and restart your computer to regain trackball or trackpad mouse control.

3. If the screen goes blank while using your remote control, it may be the result of the computer's screen-saver or power management software. If you accidentally hit the OFF button on the remote control, wait one full minute and then press the ON button to resume.

Connecting Your PC Or Macintosh Computer

Connecting your PC or Macintosh computer to your MultiSync MT1020G (XGA) / 820G (SVGA) LCD Projector will enable you to project your computer's screen image for an impressive presentation. All of these following display standards are supported:

VGA 640×480 for graphics	VGA 640×400 for graphics
VGA 640×350 for graphics	VGA 720×400 for text
VGA 720×350 for text	SuperVGA 800×600
XGA 1024×768*	Macintosh at 1024×768*
Macintosh at 640×480	Macintosh at 832×624

*indicates that this resolution is supported by MT1020G only.

To connect to a PC, Macintosh or computer equipped with an XGA/SuperVGA/VGA adapter or compatible graphics adapter, simply:

1. Turn off the power to your LCD projector and computer.

2. If your PC does not support XGA/SuperVGA/VGA you will need to install an XGA/SuperVGA/VGA graphics board. Consult your computer's owner's manual for your XGA/SuperVGA/VGA configuration. If you need to install a new board, see the manual that comes with your new graphics board for installation instructions.

3. Use the MultiCable that's supplied to connect your PC or Macintosh computer to the LCD projector. For a PC, use the smaller 15-pin connector on the cable to connect to your computer's video port; use the larger 15-pin connector on the cable to connect to the projector's RGB 1 input. For Macintosh, use the larger 15-pin connector on the cable to connect to your computer's video port; use the smaller 15-pin connector on the cable to connect to the projector's RGB 2 input. (You can also use your own video cable if you wish. For a PC cable, use the smaller 15-pin connector RGB 2 on the projector. For a Macintosh cable, use the larger 15-pin connector RGB 1 on the projector.)

4. Turn on the LCD projector and the computer.

5. If the projector goes blank after a period of inactivity, it may be caused by a screen saver installed on the computer you've connected to the projector.

NOTE: Refer to your computer's owner's manual for more information about your computer's video output requirements and any special identification or configuring your projector's image and monitor may require.

Changing Video Resolutions

Depending on your computer's graphic capability, you may be able to select one of several resolutions. Generally a computer- either a PC or Macintosh- with 1 meg. of memory will run:

640 x 480 at 16.7 million colors (24 bit Truecolor)
800 x 600 at 65000 colors.
1024 x 768 at 256 colors.

As the resolution increases, the number of colors you can run decreases. With 2 meg. of memory a computer will run:

640 x 480 at 16.7 million colors (24 bit Truecolor).
800 x 600 at 16.7 million colors (24 bit Truecolor).
1024 x 768 at 65000 colors.
1280 x 1024 at 256 colors.

Windows 95

There are two methods you can use to change your resolution.

Method 1
1. Move your cursor to the background image and click.
2. In the "Properties" menu, select "Settings."
3. Change your resolution and click "OK."
4. You may be asked to reboot for the changes to take affect, or you'll get a message that "Windows is about to resize your display." You'll be asked if you want to keep your settings. Select "Yes."

Method 2
1. Click on your "My Computer" icon.
2. Open "Control Panel" and select "Display."
3. Change your resolution and click "OK." after the new resolution is selected.
4. You may be asked to reboot for the changes to take affect, or you'll get a message that "Windows is about to resize your display." You'll be asked if you want to keep your settings. Select "Yes."

Windows 3.1

1. Click on the "Main" icon and open "Control Panel."
2. Select "Change System Settings" and click on "Option."
3. Choose "Change Display Settings."
4. Select the resolution you want.
5. Choose the current drive or another.
6. Restart Windows for the changes to take affect.

Macintosh

1. Under the Apple menu, select "Control Panels" and open "Monitors."
2. Click and open "Options."
3. Select your new resolution and click "OK."

If you have an NEC monitor connected to your Macintosh, you may have a "DPI-On-The-Fly" extension that enables you to change your resolution directly. The "DPI-On-The-Fly" icon is under your Apple menu.

Notebook Computers And Resolution Standards

NEC projectors are designed to project industry standardized video such as VESA (Video Electronics Standards Association) or VGA (Video Graphics Array). Notebook computers do not use industry standards. They use whatever timing is necessary to match their local LCD display. The end result is typically not standards. By turning off your notebook's display, the timing parameters are a bit more like the real VESA or VGA signal.

For an optimal projected image with a notebook computer, it is recommended that you use the CUSTOM 6 memory data. This feature is useful when an XGA image (1024×768) is displaying with a notebook computer supported by SXGA (1280×1024) and when an SVGA image (800×600) is displayed with a notebook computer supported by XGA (1024×768). See Source Menu on page E-24 for more information.

Connecting Your Document Camera

You can connect your MultiSync MT1020G/820G LCD Projector to a document camera. To do so, simply:

1. Turn off the power to your LCD projector and document camera.
2. Use a standard video cable to connect your document camera to the Video input on your projector.
3. Turn on the LCD projector and the document camera.

NOTE: Refer to your document camera's owner's manual for more information about your camera's video output requirements .

Connecting Your VCR Or Laser Disc Player

You use common RCA cables (not provided) to connect your VCR or laser disc player to your MultiSync MT1020G/820G LCD Projector. To make these connections, simply:

1. Turn off the power to your LCD projector and VCR or laser disc player.
2. Connect one end of your RCA cable to the video output connector on the back of your VCR or laser disc player, connect the other end to the Video input on your projector. Use standard RCA audio patch cords to connect the audio from your VCR or laser disc player to your projector (if your VCR or laser disc player has this capability). Be careful to keep your right and left channel connections correct for stereo sound.
3. Turn on the LCD projector and the VCR or laser disc player.

NOTE: Refer to your VCR or laser disc player owner's manual for more information about your equipment's video output requirements.

Connecting An External Monitor

You can connect a separate, external monitor to your LCD projector to simultaneously view on a monitor the image you're projecting. To do so:

1. Turn off the power to your LCD projector and computer, document camera or video source.
2. Use a 15-pin cable to connect your monitor to the RGB MONITOR OUT connector on your LCD projector.
3. Turn on the LCD projector and the computer, document camera or video source.

Connecting Your Remote Mouse Receiver

The remote mouse receiver enables you to operate your computer's mouse functions from the NEC MultiSync MT1020G/820G remote control. It is a great convenience for clicking through your computer-generated presentations.

To connect the remote mouse receiver:

1. Turn off your computer.

2. For PCs: Remove your current mouse and connect the serial cable from the remote mouse receiver to your PC's mouse port. (Use the 6-pin adapter for connecting to a PS/2 computer.)

   For Macintosh: Remove your current mouse from your computer, attach the Macintosh adapter to the remote mouse receiver's serial cable, and connect the receiver to your mouse port.

3. When the remote mouse receiver is installed, it will disable your regular mouse, disconnect the remote mouse receiver and restart your computer.

IBM PC/AT

Macintosh

IBM PS/2
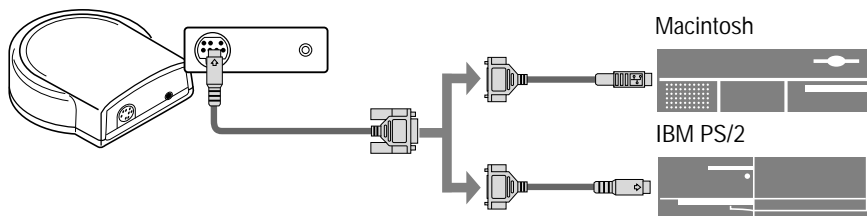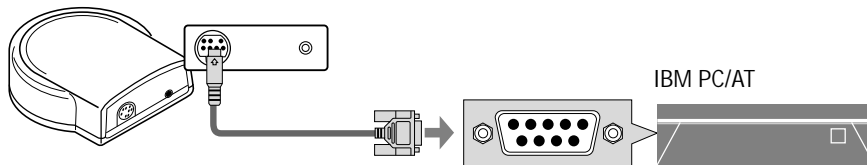
■ **The Remote Mouse Receiver as a mouse for your computer**

Serial cable (supplied)
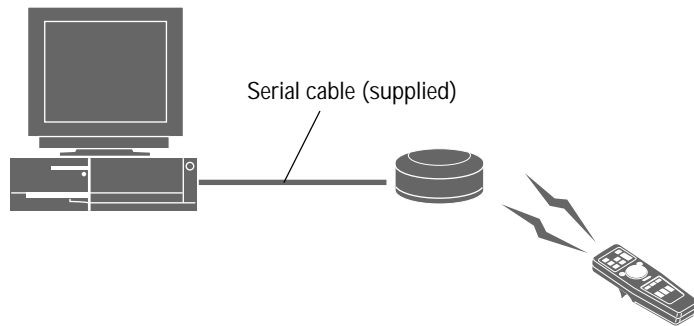
■ **The Remote sensors on the projector cabinet work as the remote sensor on the Remote Mouse Receiver**

Remote cable (supplied)

Serial cable (supplied)

REMOTE CONTROL output
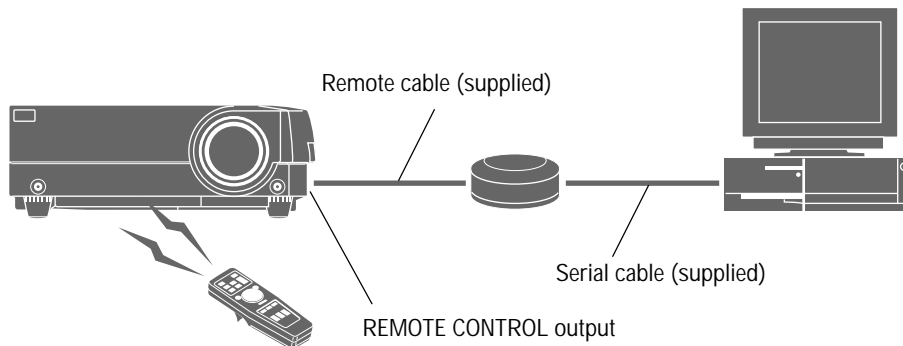
■ **You can daisy-chain as many as five LCD projectors and operate them with the same remote control. To do so:**

1. Turn off your projectors.
2. Use the remote control cables supplied to connect the Remote Control Output of one projector to the Remote Control Input of the next until all the projectors are connected.

Remote cable (supplied)

REMOTE CONTROL output

REMOTE CONTROL output

REMOTE CONTROL input

REMOTE CONTROL input

REMOTE CONTROL input

Remote cable (supplied)

Remote cable (supplied)
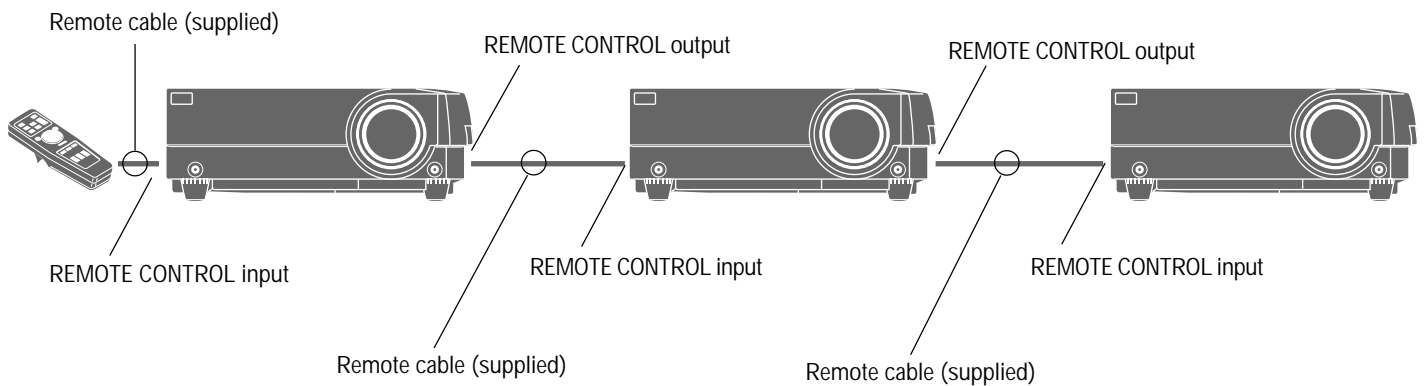
This section describes how to select a computer or video source and how to adjust the picture and sound.

General Controls Before you turn on your MultiSync MT1020G/820G LCD Projector, ensure that the computer or video source is turned on and that your lens cap is removed.

1. **Turn On The LCD Projector** The main power switch is on the back panel of the MultiSync MT1020G/820G LCD Projector. By turning this switch on, the projector will go into its standby mode and the power light will glow amber. Only after you press the "On" button on the remote control or projector cabinet will the power light turn to green and the projector become ready to use.

NOTE: To turn the LCD projector on and off with just the back panel switch, use the menu and enable the "auto start" feature. (See page E-26.)

---

2. **Select The Computer Or Video Source** Press the "Video" (VCR, document camera, or laser disc player), "S-video", "RGB 1" or "RGB 2" (computer) button on the remote control to display the image. Or press the "Menu" button on the cabinet and use the icons to select your video source: "Video", "S-Video", "RGB 1" or "RGB 2."

3. **Adjust The Image Size** Press the "Zoom" button (+) or (–) on the remote control or projector cabinet to make the image larger or smaller.

4. **Focus** Press the "Focus" button (+) or (–) on the remote control or projector cabinet to focus the image.

5. **Turning Off The Projector** First press the "off" button on the remote control or the projector cabinet. The power light will glow amber. Then turn off the main power switch on the back panel. The power light will go out.

IMPORTANT:

• The LCD projector should be unplugged if it will not to be used for an extended period.
• To turn off the image briefly (five minutes or less), use the "Picture Mute" button instead of turning the projector off and on.
• The LCD projector will display a black, blue, or loop image if no input signal is present.
• Do not turn the LCD projector off and then immediately back on. The projector needs to cool for a minute before it can be restarted.

Using The Menus

1. Press the "Menu" button on the remote control or projector cabinet to display the Main Menu.

2. Press the "Select" button on the projector cabinet or (▲) (▼) buttons on your remote control to highlight the menu for the item you want to adjust.

3. Press the "Enter" button on the projector cabinet or the "Left Click" button on the remote control to select a submenu or item.

4. Adjust the level or turn the selected item on or off by using the "Adjust" (+) or (–) buttons on the remote control or cabinet. The on-screen gauge will show you the amount of increase or decrease. [The (+) button is "on" and (–) is "off".]

5. The change is stored until you adjust it again.

6. Repeat steps 2-5 to adjust an additional item, or press "Right Click" on your remote control to quit the menu display.
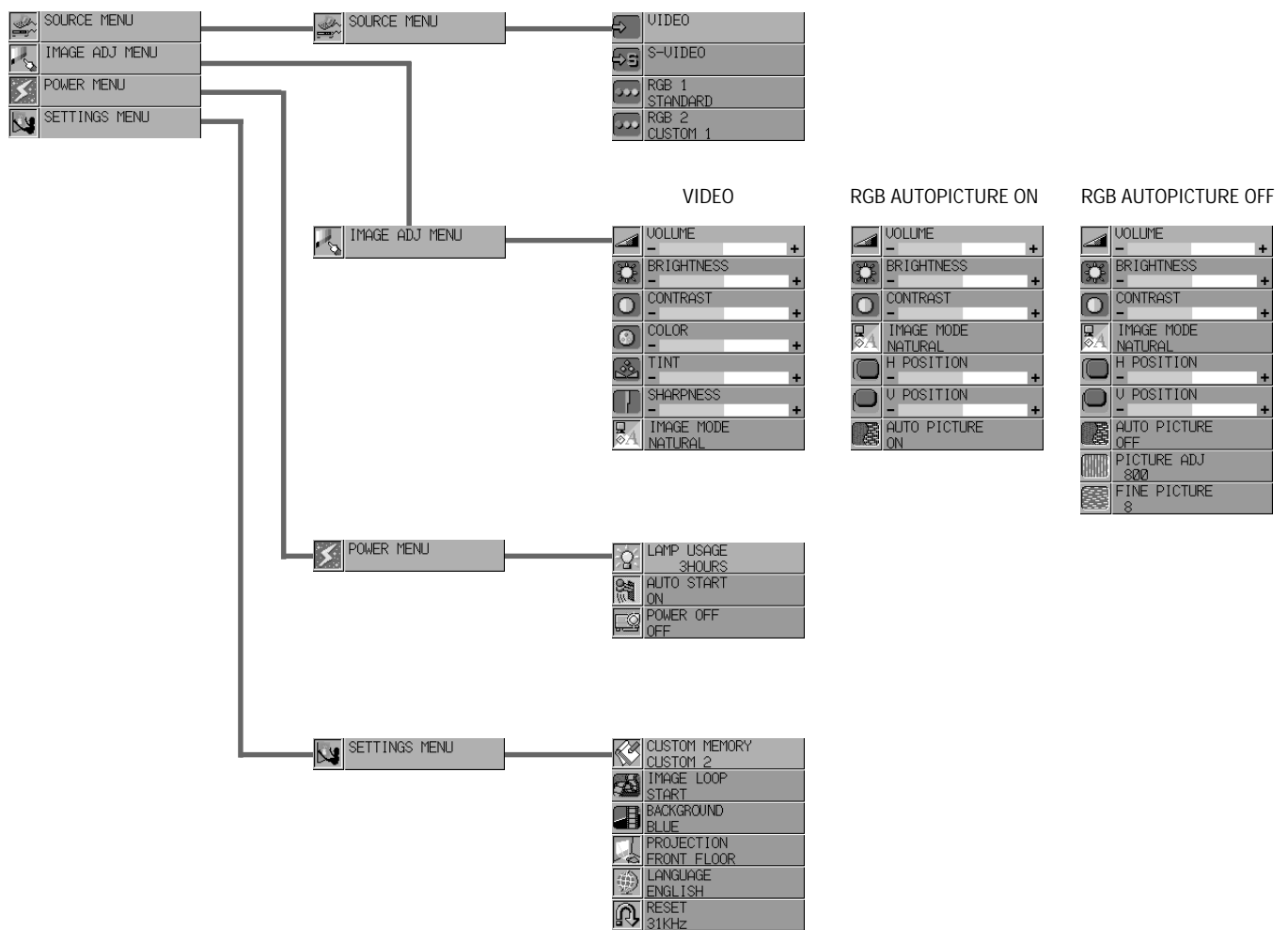
Menu Descriptions & Functions

Source Menu

| SOURCE MENU |

Enables you to select a video source such as a VCR, laser disk player, computer or document camera depending on what is connected to your inputs. Press the "Select" button on the projector cabinet or (▲) (▼) buttons on your remote control to highlight the menu for the item you want to adjust.

| VIDEO |
| S-VIDEO |
| RGB 1 STANDARD |
| RGB 2 CUSTOM 1 |
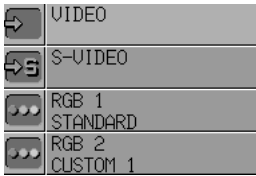
Video
Selects what is connected to your Video input-VCR, laser disk player or document camera.

S-Video
Selects what is connected to your S-Video input-VCR, or laser disk player.

RGB 1
Selects what is connected to your RGB 1 input —a computer. Use the "Adjust" (+) or (–) buttons to select a standard* or one of six** custom settings you can create. Press the "Enter" button on the cabinet or the "Left Click" button on the remote control to save your selection.

RGB 2
Selects what is connected to your RGB 2 input — a computer. Use the "Adjust" (+) or (–) buttons to select a standard* or one of six** custom settings you can create. Press the "Enter" button on the cabinet or the "Left Click" button on the remote control to save your selection.

Note on Custom Memory:
If a previously saved custom memory location is used with a new or different input signal it may not sync up, producing a distorted image, or no image at all. If so, follow the instructions below:
1) *Disconnect the signal cable so that there is no input signal. In this condition the on-screen message will be displayed.*
2) *Select RGB1 standard or RGB2 standard from the source menu.*
3) *Connect the signal cable again.*

NOTE:
* *Standard is normally used and it can be user changed and automatically recalled.*
** *"Custom 6" is read only. This feature is useful when an XGA image (1024×768) is displayed with a notebook computer supported by SXGA (1280×1024)and when an SVGA image (800×600) is displayed with a notebook computer supported by XGA (1024×768).*

Image Adjustment Menu

| IMAGE ADJ MENU |

Provides access to controls for your image and sound. Use the "Select" button on the projector cabinet or (▲) (▼) buttons on your remote control to highlight the menu for the item you want to adjust.
The volume, brightness, contrast, color, tint, sharpness and Image Mode controls are available for Video or S-Video sources.
The volume, brightness, contrast, Image Mode, horizontal position, vertical position and auto picture controls are available for RGB 1 or RGB 2 sources.

| VOLUME – + |
| BRIGHTNESS – + |
| CONTRAST – + |
| COLOR – + |
| TINT – + |
| SHARPNESS – + |
| IMAGE MODE NATURAL |

Volume
Use the "Adjust" (+) or (–) buttons to adjust the volume.

Brightness
Use the "Adjust" (+) or (–) buttons to adjust the brightness.

Contrast
Use the "Adjust" (+) or (–) buttons to adjust the contrast.

Color*
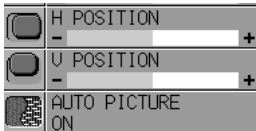Use the "Adjust" (+) or (–) buttons to adjust the color.

Tint*
Use the "Adjust" (+) or (–) buttons to adjust the tint.

Sharpness*
Use the "Adjust" (+) or (–) buttons to adjust the sharpness.

Image Mode***
Use the "Adjust" (+) or (–) buttons to choose "Normal" for a regular picture "Natural" for true color reproduction, or "Document Camera" for a document camera or other low APL picture.
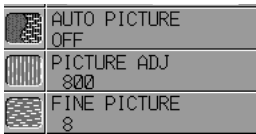

Horizontal Position**
Use the "Adjust" (+) button to move the image right; (–) to move it left.

Vertical Position**
Use the "Adjust" (+) button to move the image up; (–) to move it down.

Auto Picture**
Use the "Adjust" (+) button to turn this feature on so "Picture" and "Fine Picture" adjustments are made automatically. Use the "Adjust" (–) button to turn this feature off so you can make "Picture and Fine Picture" adjustments manually.

Picture Adjustment** (when AUTO PICTURE is off)
Use this icon with the "Fine Picture Adjustment" to fine tune the computer image or to remove any vertical banding that might appear. This function adjusts the clock frequencies that eliminate the horizontal banding in the image. Press the "Adjust" (+) and (–) buttons until the banding disappears. This adjustment may be necessary when you connect your computer for the first time. This adjustment is made automatically when the Auto Picture is turned on.

Fine Picture** (when AUTO PICTURE is off)
Use this icon to adjust the clock phase or to reduce video noise, dot interference or cross talk. (This is evident when part of your image appears to be shimmering.) Use the "Adjust" (+) and (–) buttons to adjust the image. Use the Fine Adjustment only after the Picture Adjustment is complete. This adjustment is made automatically when the Auto Picture is turned on.

NOTE:
* *Color, Tint, Sharpness and Image Mode controls will not work with an RGB source. The Tint control will not work with a PAL or SECAM source.*
** *Horizontal and Vertical position controls, and Picture, Fine Picture and Auto Picture adjustments will not work with a Video or S-Video source.*
*** *The Document Camera mode will not work with an RGB or S-Video source.*

Power Menu

Provides access to Lamp Usage information and the Auto Start and Power Management features. Use the "Select" button on the projector cabinet or (▲) (▼) buttons on your remote control to access a submenu. Then press "Adjust" (+) or (–) to choose a specific option.

Lamp Usage
This tells you how long the lamp has been in operation. It is recommended that you replace a lamp after 2000 hours of service. After you install a new lamp, select this icon and press and hold the "Power On" button on the remote control for ten seconds to reset the lamp clock back to zero.

NOTE: The projector will turn off and be in standing by after 2100 hours of service. If this happens, press the "Power Off" button on the remote control for ten seconds to reset the lamp clock back to zero. Do this only after replacing the lamp.

Settings Menu

SETTINGS MENU

CUSTOM MEMORY
CUSTOM 2
IMAGE LOOP
START
BACKGROUND
BLUE
PROJECTION
FRONT FLOOR
LANGUAGE
ENGLISH
RESET
31KHz

Enables you to set preferences and other operating options. Use the "Select" button on the projector cabinet or (▲) (▼) buttons on your remote control to access the submenu you want.

Custom Memory
This enables you to save your current settings for an RGB source in one of five memories, Custom 1-5.

"Custom 6" is read only. This feature is useful when an XGA image (1024×768) is displayed with a notebook computer supported by SXGA (1280×1024) and when an SVGA image (800×600) is displayed with a notebook computer supported by XGA (1024×768).

To change the STANDARD settings, proceed as follows:

1. Connect your computer to the MultSync MT1020G/820G.

2. Select the "STANDARD" in RGB 1 or RGB 2 source.

3. Adjust the horizontal/vertical position, Picture, and Fine picture adjustments.

4. Select the Custom Memory icon.

5. Press the "Adjust" (+) or (–) buttons to choose a memory location, then press "Enter" on the cabinet or the "Left Click" on your remote control to save the new settings.
   If you do not want to change the STANDARD settings, first select the Custom Memory icon, then do the same as step5.

Image Loop
This feature enables you to "capture" an image from a source that is currently being displayed. Up to 8 images can be stored.

Press the "Adjust" (+) or (–) buttons to select "Start" for the image you want to loop and "Capture" for the image you want to capture or to select "Delete" and delete all captured images from memory. Press "Enter" on the cabinet or the "Left Click" on your remote control to save your image loop changes. To stop an image loop, press one of the "Video", "S-Video", "RGB1" or "RGB2" button, or use the Source menu.

Background
Use this feature to display a black or blue screen or to start an image loop when no input signal is available.

Press the "Adjust" (+) or (–) buttons to choose the back screen you want — blue, black or an image loop. Press "Enter" on the cabinet or the "Left Click" on your remote control to save your change.

NOTE: This feature will not work with Video or S-video sources and the projector will display a black image if no input signal is present.

Projection
This reorients your image for your type of projection. Press the "Adjust" (+) or (–) button until it is correct. Press "ENTER" on the cabinet or the "Left Click" on your remote control to save your change. The options are: front floor projection, rear ceiling projection, rear floor projection, and front ceiling projection.

Language

Use the "Adjust" (+) or (–) to choose one of six languages for on-screen instructions. Press "ENTER" on the cabinet or the "Left Click" on your remote control to save your change. The options are: English, German, French, Italian, Spanish and Swedish.

Reset

Changes all adjustments to the factory preset levels for each source individually. To activate, you must hold down the "Adjust" (+) button on the cabinet or remote control for at least two seconds. The adjustments that will be reset are horizontal and vertical control, picture and fine picture adjustment (for the current source only), brightness, contrast, color, tint, and sharpness.

NOTE: When custom setting is selected, reset changes all adjustment to the factory preset levels of the current input signal for selected custom memory location.
This will not return to your previous custom settings and will delete your saved settings from custom memory.

This section describes the simple maintenance procedures you should follow to replace the lamp, clean or replace the filter, and replace the batteries in the remote control.

Replacing The Lamp

After your lamp has been operating for 2000 hours or longer, the "status" light in the cabinet will go on. Even though the lamp may still be working, replace it at 2000 hours to maintain optimal projector performance.

⚠ CAUTION
• DO NOT TOUCH THE LAMP immediately after it has been used. It will be extremely hot. Allow at least one hour for the lamp to cool before handling.
• DO NOT REMOVE ANY SCREWS except the lamp cover set screw and two lamp case screws. You could receive an electric shock.
• Turn off the main power to the projector and disconnect the power cord. Allow at least one hour for the lamp to cool.
• The projector will turn off and be in standing by after 2100 hours of service. If this happens, be sure to replace the lamp. If you continue to use the lamp after 2000 hours of use, the lamp bulb may shatter, and pieces of glass may be scattered in the lamp case. Do not touch them as the pieces of glass may cause injury. If this happens, contact your NEC dealer for lamp replacement.

To replace the lamp:

1. Remove the single screw that secures the lamp housing cover and remove the cover.

2. Remove the two screws securing the lamp case. (There is an interlock on this case to prevent the risk of electrical shock. Do not attempt to circumvent this interlock.)

3. Remove the lamp by pulling out the complete assembly.

4. Install a new lamp case assembly and secure it in place with the two screws.

> ⚠ CAUTION: Do not use a lamp other than the NEC replacement lamp.
> Order this from your NEC dealer using your projector's model number.

5. Reattach the lamp cover and reinstall the single screw.

6. After you install a new lamp, select the lamp Usage icon and press and hold the "Power On" button on the remote control for ten seconds to reset the lamp time clock to zero.

NOTE: If resetting the lamp clock back to zero after 2100 hours of service, press the "Power Off" (not "Power On") button on the remote control for ten seconds .

NOTE: When you replace the lamp, it is also wise to replace the filter. The filter comes in the same package with your replacement lamp.

> ⚠ CAUTION: Do not put the LCD projector on end except to replace the air filter.

Step 1A

Step 1B

Interlock
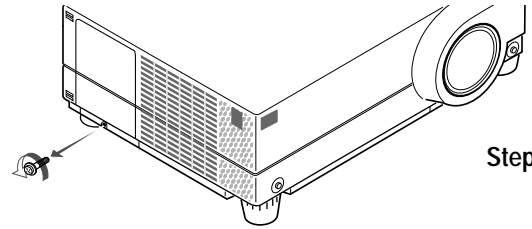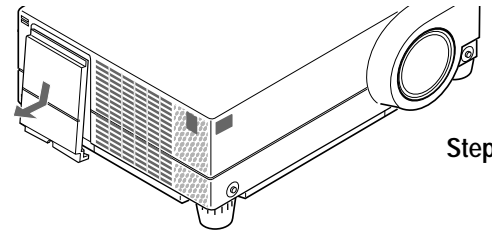
Step 2

Step 3

Step 4

Step 5

Cleaning Or Replacing The Filter

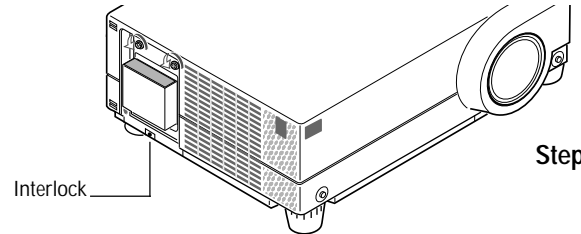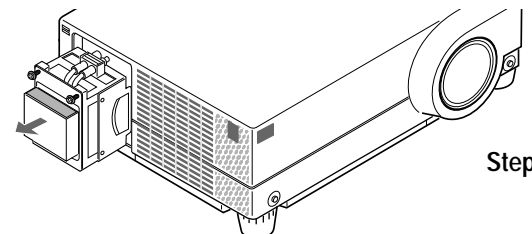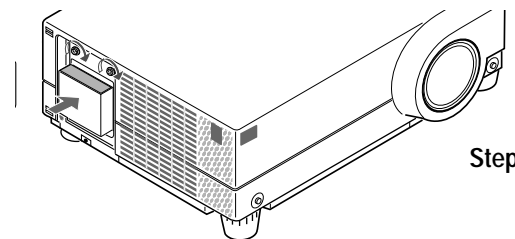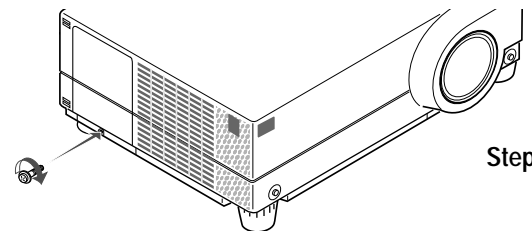The air-filter sponge keeps the inside of the MultiSync MT1020G/ 820G LCD Projector free from dust or dirt and should be cleaned after every 100 hours of operation (more often in dusty conditions). If the filter is dirty or clogged, your projector may overheat.

NOTE: Clean your filter after every 100 hours of operation.

⚠ CAUTION

- Turn off the LCD projector and wait for the fan to stop. Turn off the main power and unplug the projector before replacing the filter.
- Only clean the outside of the filter cover with a vacuum cleaner.
- Do not attempt to operate the projector without a filter.
- Your LCD projector will not operate unless the filter is installed correctly.
- Do not put the LCD projector on end except to replace the filter.

To clean the air-filter:

1. Turn over the projector. Put the LCD projector on end so that the bottom is visible.
2. Vacuum the filter through the filter cover.
3. Place the projector back in a horizontal position.

To replace the air-filter:

1. Remove the filter panel by pushing up on the catch of the cover with a flat-head phillips until you feel it detach.
2. Remove the filter and replace it.
3. Reinstall the filter panel.

NOTE: Do not detach the sponge from the filter cover. Do not wash the filter with soap and water. Soap and water will damage the filter membrane.
Before replacing the air-filter, remove dust and dirt from the projector cabinet. Keep them out during filter replacement.

Remote Control Battery Installation

1. Press firmly and slide the battery cover off.
2. Remove all two old batteries and install new ones (AA). Ensure that you have the batteries' polarity (+/–) aligned correctly.
3. Slip the cover back over the batteries until it snaps into place.
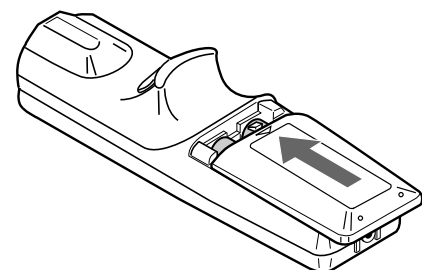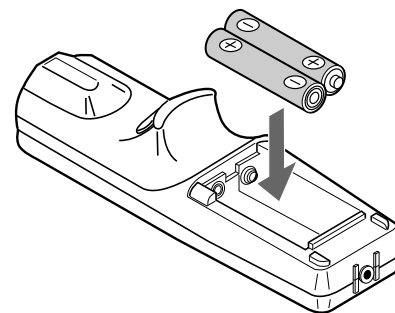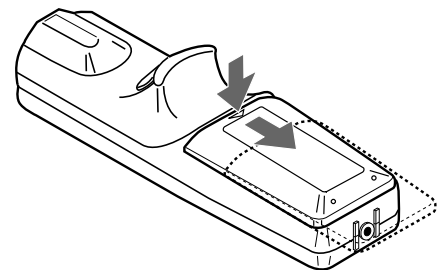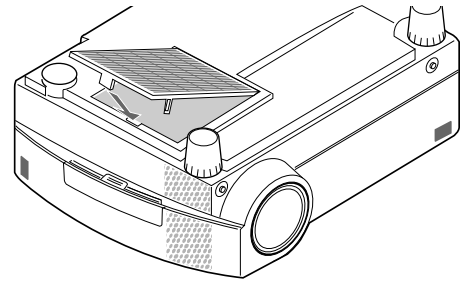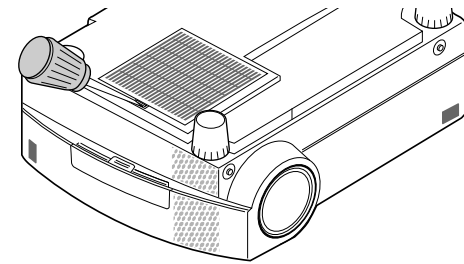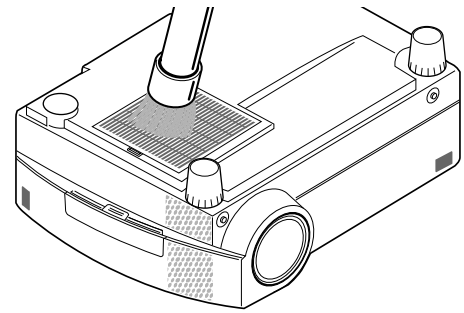
This section helps you resolve problems you may encounter while setting up or using your MultiSync MT1020G/820G LCD Projector.

Status Light Messages

Condition	Status
OFF	*Normal*
On Continually	*The projector lamp has exceeded 2000 hours of operation and should be replaced.*
Blinking Very Rapidly (On and off in a cycle of 1 sec.)	*Either the lamp cover or filter panel is not fastened properly. Check each and reattach them if necessary.*
Blinking Rapidly (On and off in a cycle of 4 sec.)	*The projector is overheated.* • *If there is insufficient ventilation around the projector or if the room where you're presenting is particularly warm, move the projector to a cooler location.* • *Check the filter and clean it if necessary.* • *If the problem persists, contact your NEC dealer for service.*
Blinking Slowly (On and off in a cycle of 8 sec.)	*The cooling fan has stopped. Contact your NEC dealer for service.*
Blinking Very Slowly (On and off in a cycle of 12 sec.)	*The lamp is not turned on.* • *The projector was turned off and back on too quickly. Turn off the projector, wait one minute, then turn the projector back on. Or the lamp is burnt.*

Common Problems & Solutions

Problem	Check These Items
Does not turn on	• Check that the cord is plugged in and that the power switch on the back panel is on. • Ensure that the air filter and filter panel are installed correctly. (See page E-29.) • Check the status light to see if the projector has overheated or the lamp usage exceeds 2100 hours.
No picture	• Use the menu icons to select your source (Video, S-Video, RGB1 or 2). (See page E-24.) • Ensure your cables are connected properly. • Use icons to adjust the brightness and contrast. • Remove the lens cap. • Reset the settings or adjustments to factory preset levels using the RESET icon on the Settings Menu.
Image isn't square to the screen	• Reposition the projector to improve its angle to the screen.
Picture is blurred	• Adjust the focus. (See page E-8 or E-12.) • Reposition the projector to improve its angle to the screen. • Ensure that the distance between the projector and screen is within the adjustment range of the lens.
Image is scrolling vertically, horizontally or both	• Use icons to select the source you want to input. • Make sure the recalled Custom Memory supports the current input signal.
Remote control does not work	• Install new batteries. (See page E-29.) • Make sure there are no obstacles between you and the projector. • Stand within 23 feet (7m) of the projector.
Status indicator is lit or blinking	See the Status Light message chart on page E-30.
Cross color in RGB mode	If "Auto Picture" is off, turn it on. If "Auto Picture" is on, turn it off and balance the image with the Picture Adjustment icon and Fine Picture Adjustment icon.

The "LAMP USAGE 2000 HOURS" message will not appear when the freeze button is activated.

This section explains conditions that you will encounter when operating your MT1020G while displaying an SXGA (1280×1024) image.
• When a menu or message is displayed while an SXGA image is projected, several lines of information will be lost.
• When the "LAMP USAGE 2000 HOURS" message appears, several lines of information will be lost.
• SXGA images inherently display a 5 to 4 ratio, resulting in an image that appears to be smaller and more square than the 4 to 3 format commonly displayed.

6 S P E C I F I C A T I O N S

This section provides technical information about the MultiSync MT1020G/820G LCD Projector's performance.

Optical

LCD Panel	1.3", p-Si TFT active-matrix, 1024×768 dots (MT1020G) / 800×600 dots (MT820G)
Lens	Power zoom, power focus F 2.5 f =52-68 mm
Lamp	Metal halide lamp 250 W
Image Size	508-7620 mm (20-300 inches) diagonal
Projection Distance	1.0 – 12.2m
Light Output	700 ANSI lumens (MT820G) / 600 ANSI lumens (MT1020G)
Contrast Ratio	Greater than 200 : 1
Color Temperature	8,500±1,500 Kelvin

Electrical

Inputs	Video (NTSC / PAL / SECAM / NTSC4.43) RGB (MT1020G; H:15-85 kHz, V: 50-85 Hz) RGB (MT820G; H:15-60 kHz, V: 50-85 Hz)
Video Bandwidth	80 MHz (MT1020G) / 60 MHz (MT820G)
Color Reproduction	Full color, 16.7 million colors simultaneously.
Horizontal Resolution	NTSC 550, PAL 350, SECAM 350, NTSC4.43 350 TV lines MT1020G: RGB 1024 dots horizontal, 768 dots vertical MT820G: RGB 800 dots horizontal, 600 dots vertical
Power Requirement	100-120/220-240 VAC, 50/60 Hz
Input Current	5.8 A

Mechanical

Dimensions	39.0 cm (W) x 14.5 cm (H) x 32.1 cm (D)
Net Weight	7.1 kg
Operational Temperatures	LCD projector: 0° to 40°C (32°-104°F), 20-80% humidity Remote control: 0° to 60°C (32°-140°F) Remote mouse receiver: 0° to 60°C (32°-140°F)
Regulations	Meets EMC Directive (EN55022, EN61000-3-2, EN61000-3-3, EN50082-1) Meets Low Voltage Directive (EN60950, TÜV GS Approved) C€

Dimensions

285.0

321.0

286.5

390

145.0

78.2

77.2
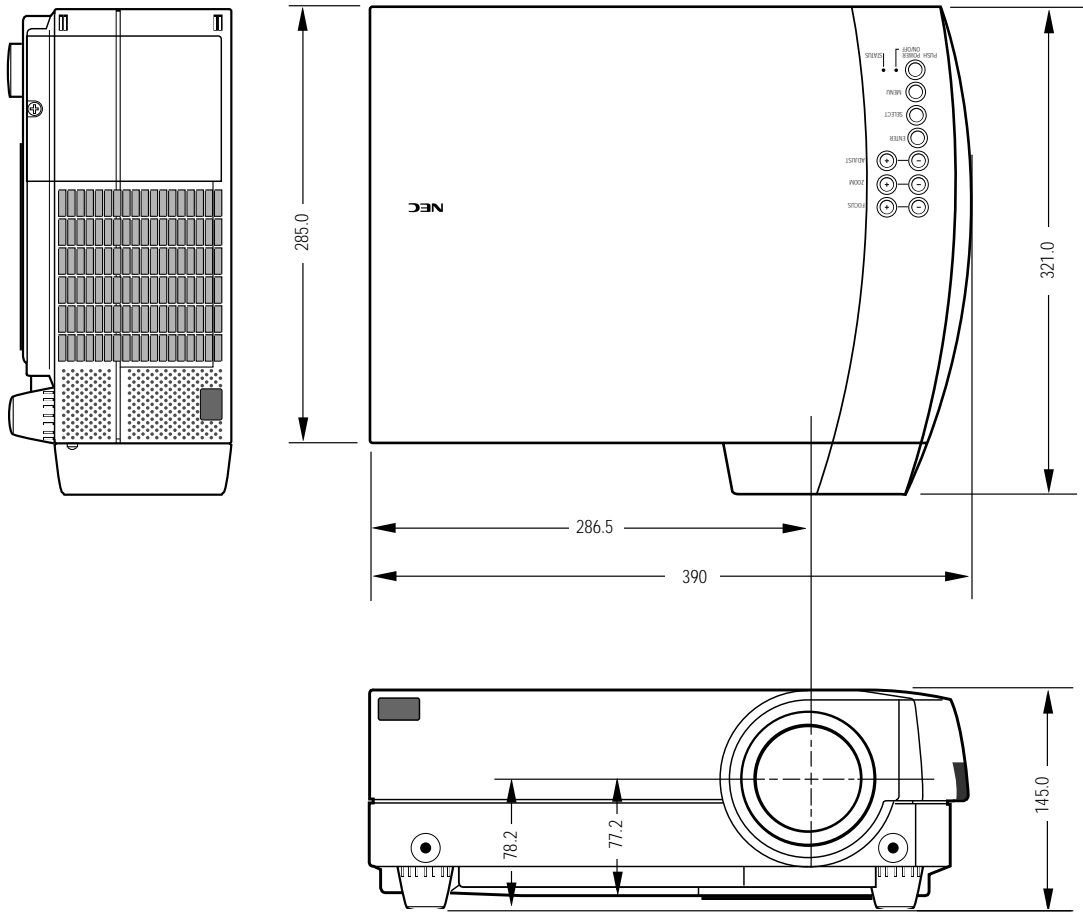
units : mm

D-Sub Pin Assignments

PC 15-Pin mini D-Sub

Pin No.	Signal to be connected
1	Red
2	Green
3	Blue
4	GND
5	GND
6	Red GND
7	Green GND
8	Blue GND
9	No Connection
10	Digital GND
11	GND
12	No Connection
13	Horizontal Sync
14	Vertical Sync
15	No Connection

Macintosh 15-Pin D-Sub

Pin No	Signal to be connected
1	Red GND
2	Red
3	Horizontal Sync
4	GND
5	Green
6	Green GND
7	No Connection
8	No Connection
9	Blue
10	No Connection
11	GND
12	Vertical Sync
13	Blue GND
14	No Connection
15	No Connection

PC 15-Pin mini D-Sub
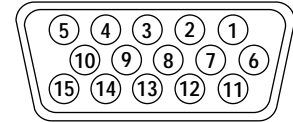
Macintosh 15-Pin D-Sub
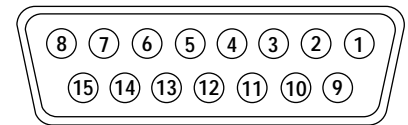
Timing Chart

Yes/No	Signal	Resolution	Refresh Rate (Hz)	F.H. (kHz)	Dot Clk(MHz)
Y	NTSC	640×480	60	15.734	-
Y	PAL	768×576	50	15.625	-
Y	SECAM	768×576	50	15.625	-
Y	VESA	640×350	85.08	37.86	31.5
Y	IBM	640×400	70	31.47	25.175
Y	VESA	640×400	85.08	37.86	31.5
Y	MAC	640×400	66	35	30.24
Y	VESA	640×480	59.94	31.47	25.175
Y	IBM	640×480	60	31.47	25.175
Y	MAC	640×480	60	31.47	25.175
Y	MAC	640×480	66.7	34.97	31.334
Y	MAC	640×480	66.67	35	30.24
Y	VESA	640×480	72.81	37.86	31.5
Y	VESA	640×480	75	37.5	31.5
Y	IBM	640×480	75	39.375	31.49
Y	VESA	640×480	85.01	43.269	36
Y	IBM	720×350	70.09	31.469	28.322
Y	IBM	720×400	70.09	31.4469	28.322
Y	VESA	720×400	85.04	37.927	40
Y	IBM	720×350	87.85	39.44	35.5
Y	IBM	720×400	87.7	39.375	35.5
Y	VESA	800×600	56.25	35.16	36
Y	VESA	800×600	60.32	37.879	40
Y	VESA	800×600	72.19	48.077	50
Y	VESA	800×600	75	46.88	49.5
Y	VESA	800×600	85.06	53.674	56.25
Y	MAC	832×624	74.55	49.725	57.283
N	VESA	1024×768	43interlace	35.5	44.9
Y	VESA	1024×768	60	48.363	65
Y	VESA	1024×768	70.07	57.476	75
Y	IBM	1024×768	72.03	58.131	79
Y	MAC	1024×768	74.93	60.241	80
Y	VESA	1024×768	75.03	60.023	78.75
Y	VESA	1024×768	85	68.677	94.5
Y	SGI	1024×768	60.4	49.7	70
#	MAC	1152×870	75.6	68.7	100
#	SUN	1152×900	69.95	61.769	92.94
#	SGI	1152×900	76.05	71.736	105.6
#	SGI	1280×1024	60	63.9	107.35
#	VESA	1280×1024	60.04	64.286	108
#	MAC	1280×1024	69.89	74.882	118.5
#	HP	1280×1024	72.01	78.125	135
#	VESA	1280×1024	75.03	79.976	135
#	SUN	1280×1024	76.11	81.13	135

Incompatible signals are listed "N". #1152×870, #1152×900 and #1280×1024 images are compressed on MT1020G.

NOTE: The signals indicated by shaded area are not supported by MT820G.

#1024×768 and 832×624 images are compressed into 800×600 on MT820G.

PC Control Command Reference

Command Codes

No.	Function	Code	Data	Description
01	Video	03H	No	Same as remote
02	RGB1	04H	No	Same as remote
03	RGB2	05H	No	Same as remote
04	S-VIDEO	C6H	No	Same as remote
05	Power On	08H	No	Same as remote (See NOTE on page 37.)
06	Power Off	14H	No	Same as remote
07	Picture Mute	47H	No	Same as remote
08	Audio Mute	45H	No	
09	Onscreen Mute	11H	No	
10	Power Zoom W	09H	No	Same as remote
11	Power Zoom T	0AH	No	Same as remote
12	Power Focus +	0BH	No	Same as remote
13	Power Focus –	0CH	No	Same as remote
14	Reset	43H	No	(Resets immediately after returning ACK)
15	D Up	DEH	No	Same as remote
16	D Down	DFH	No	Same as remote
17	D Right	DCH	No	Same as remote
18	D Left	DDH	No	Same as remote
19	D Right Up	21H	No	Same as remote
20	D Left Up	22H	No	Same as remote
21	D Right Down	23H	No	Same as remote
22	D Left Down	24H	No	Same as remote
23	Freeze	4CH	No	Same as remote
24	Slide +	4BH	No	
25	Slide -	20H	No	
26	Front Floor	33H	No	
27	Front Ceiling	34H	No	
28	Rear Floor	35H	No	
29	Rear Ceiling	36H	No	
30	Auto Start On	19H	No	
31	Auto Start Off	1AH	No	
32	Auto Picture On	1BH	No	
33	Auto Picture Off	1CH	No	
34	Image mode Doc Cam	1DH	No	
35	Image mode Normal	1EH	No	
36	Image mode Natural	1FH	No	
37	Power Management On	15H	No	
38	Power Management Off	16H	No	
39	Digital Zoom W	89H	No	Same as remote
40	Digital Zoom T	8AH	No	Same as remote
41	Brightness	60H	Yes	0 to 63
42	Contrast	62H	Yes	0 to 63
43	Color	64H	Yes	0 to 63
44	Tint	66H	Yes	-32 to +31(E0 to 1F)
45	Sharpness	68H	Yes	0 to 3
46	Audio Volume	6AH	Yes	0 to 63
47	Picture Adj	70H	Yes*	MT1020G: FFE0H to 001FH(–32 to +31) / MT820G: 768 to 1279 (2byte Code)
48	Fine Picture	6EH	Yes	MT1020G: 0 to 127 / MT820G: 0 to 31
49	H Position	72H	Yes	MT1020G: -128 to +127 (80 to 7F) / MT820G: -64 to +63 (C0 to 3F)
50	V Position	74H	Yes	MT1020G: -64 to +63(C0 to 3F) / MT820G: -32 to +31(E0 to 1F)
51	Lamp Reset	27H	No	
52	Language Select	3DH	Yes	00: English, 01: German, 02: French, 03: Italian, 04: Spanish, 05: Swedish

*(Low-order data) (High-order data) CSUM

CSUM= Checksum is a low order digit of the sum from the Code to the immediately preceding data.

NOTE: These commands are subject to change without notice.

Cable Connection

Communication Protocol

Baud rate:	*9600 bps*
Data length:	*8 bits*
Parity:	*No parity*
Stop bit:	*One bit*
X on/off:	*None*
Communications procedure:	*Full duplex*

If the CPU of the LCD projector has received the data correctly, it returns an ACK(C5H). If the received data is not correct, the CPU returns a NAK(CAH), then the following status:

Receiving success:	*C5*
Receiving failure:	*CA Err*
Err 01:	*Command Error (command not supported)*
Err 02:	*Checksum Error*
Err 03:	*Busy (command not acceptable)*
Err 04:	*Parameter Error (parameter data abnormal)*

NOTE: If failing in powering-on, the CPU returns the following NAKs:

CA Err 1

Err 1 8X (Apply the corresponding bit.)

Bit 0: Either filter panel or lamp cover is not attached correctly

Bit 1: Fan stoppage

Bit 2: Overheated

Bit 3: Lamp lighting failure

PC Control Connector (DIN-8P)

To RxD of PC

8 7 6

5 4 3

2 1

To GND of PC   To TxD of PC